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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,801	04/01/2004	Gerald W. Iseler	AFB00698	9089

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EXAMINER	
SONG, MATTHEW J	

ART UNIT	PAPER NUMBER
1722	

DATE MAILED: 04/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/825,801	ISELER ET AL.	
	Examiner	Art Unit	
	Matthew J. Song	1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Rejections Repeated

1. The 35 U.S.C. 103(a) rejection of claims 11-13 and 15 over Park et al. (US 5,769,944) in view of Kurosawa et al (JP 405097573 A1) is repeated as previously made in the office action dated 7/7/2005.

2. The 35 U.S.C. 103(a) rejection of claim 14 over Park et al. (US 5,769,944) as applied to claims 11-13, and further in view of Niikura et al is repeated as previously made in the office action dated 7/7/2005.

3. The 35 U.S.C. 102(b) rejection or in the alternative 35 U.S.C. 103(a) rejection of claims 16-19 over Lorenz et al (US 3,614,549) is repeated as previously made in the office action dated 7/7/2005.

4. The 35 U.S.C 112 second paragraph rejection of claim 16 is repeated as previously made in the office action dated 7/7/2005.

5. The 35 U.S.C 112 second paragraph rejection of claim 18 is repeated as previously made in the office action dated 7/7/2005.

Response to Amendment

6. The declaration under 37 CFR 1.132 filed 10/14/2005 is insufficient to overcome the rejection of claims 11-19 based upon 35 U.S.C 103(a) in view Park et al (US 5,769,944), Kurosawa (JP 405097573), Niikura et al and Lorenz et al (US 3,614,549) as set forth in the last Office action because: the facts presented are not germane to the rejection at issue. The declaration merely states low defect density, uniform distribution of components and of uniform property result from electromagnetic stirring. However, there is no facts which set forth a definite limitation of "low defect density" or "uniform composition". The declaration does not overcome the 35 U.S.C 112 second paragraph rejection.

Response to Arguments

7. Applicant's arguments filed 10/14/2005 have been fully considered but they are not persuasive.

Applicant's argument that Park teaches an electromagnet which can only dampen motion in the melt rather than enhancing motion is noted but is not found persuasive. Applicant's claim is directed to an apparatus comprising a an induction coil to impart a stirring force to the melt for greater uniformity in the melt and crystal, however "impart[ing] a stirring force to the melt for greater uniformity in the melt and crystal" is merely an intended use of the induction coil. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The electromagnetic taught by Park et al is capable of imposing a magnetic field, which is capable of imparting a stirring force to the melt.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a magnetic filed which can enhance motion in the melt (pg 1)) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The claim merely requires imparting a stirring force.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Park et al by using the electrode taught by Kurosawa et al to limit damage of the vessel ('573 Abstract).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., electrons which can move in all directions for greater conductivity (pg 2)) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., crystal in bulk (pg 2)) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant's argument that growing a crystal from a melt is considerably different product than a vapor deposited chip is noted but is not found persuasive. Claim 16 is a product-by-process claim. The patentability determination of a product-by-process claim is based on the patentability of the product and does not depend on its method of production (MPEP 2113). Therefore, the only product limitations is "a more uniform semiconductor crystal". Lorenz et al discloses forming a semiconductor crystal; therefore anticipates the instantly claimed product.

Applicant's argument that "more uniform composition" is the kind of uniformity that comes with electromagnetic stirring of the melt is noted but is not found persuasive. The limitation "more uniform composition" is an indefinite limitation because there is not a definitive characterization to determine the limitations of the invention. Also, there is no measured value of "uniformity" which can be used to determine whether a product " is more uniform". While applicant attempts to characterize "more uniform composition" relative to the prior art process, which does not utilize electromagnetic stirring, the claim is directed to the product and there is no definitive way to measure whether a product produced by another method would have a similar uniformity as that produced from applicant's method using electromagnetic stirring.

Applicant's argument that low defect density is definite is noted but is not found persuasive. It is impossible to determine whether a crystal has a high defect density or a low

defect density because applicant provides no basis for what range of defect density would satisfy the indefinite range of "low defect density". Applicant's attempt to define "low defect density" by comparing it the defect density produced using a method that does not employ electromagnetic stirring, however comparison is also indefinite because it is not clear what the defect density of a crystal produced without electromagnetic stirring would be.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Song whose telephone number is 571-272-1468. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Matthew J Song
Examiner
Art Unit 1722

MJS
April 17, 2006

YOGENDRA N. GUPTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700